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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,741

04/18/2005

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7590
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10/03/2006

EXAMINER

ALI, HYDER

ART UNIT

PAPER NUMBER

3747

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/531,741

Applicant(s)

HARRISON, JOHN BLAKEMORE

Examiner

HYDER ALI

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 12-14 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 4-11 and 15-17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/18/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because abstract of the disclosure is required on a separate sheet without drawing. Correction is required. See MPEP § 608.01(b).

Claim Objections

1. **Claims 4-11 and 15-17 are objected to under 37 CFR 1.75(c) as being in improper form** because a multiple dependent claim should refer to other claims in the alternative only--, and/or, -- cannot depend from any other multiple dependent claim --. See MPEP § 608.01(n). Accordingly, the claims 4-11,15,16 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

2. **Claims 19-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite** in that it fails to point out what is included or excluded by the claim language. The claims 19-21 are an omnibus type claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3,12-14,18-21 rejected under 35 U.S.C. 102(b) as being anticipated by Garretson et al (US 4,829,957).

As to Claim 1, Garretson et al discloses

- (i) An apparatus for a gaseous fuel injection system including:
 - A first chamber 76 including an inlet connectable with a source of gaseous fuel (T) at a required inlet pressure;
- (ii) A second chamber (D) connectable with an engine 10 or other apparatus so as to supply gaseous fuel thereto and further connected with said first chamber 76 through a controllable valving means;
- (iii) A flow control means 92 having an inlet connectable with said first chamber 76 and an outlet connectable with an orifice means for controlling the pressure at the outlet of said flow control means to be no more than 53% of the inlet pressure;
- (iv) Detection means 42 for detecting said outlet pressure and controlling said valving means;
- (v) The arrangement being such that controlling the said flow control means 92 to adjust the flow of gaseous fuel therethrough controls the said outlet pressure which in turn controls said controllable valving means and the pressure in said second chamber, so as to thereby control the flow of gaseous fuel to said engine 10 or other apparatus.

As to Claim 2, Garretson et al discloses wherein, in use, the pressure in said second chamber (D) is maintained at less than 53% of said pressure in said first

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chamber (76) (inherently and necessary present in a gaseous fuel engine).

As to Claim 3, Garretson et al discloses wherein said fluid control means 92 is a high speed solenoid valve.

As to Claim 12, Garretson et al discloses a method of controlling the flow of gaseous fuel in a fuel injection apparatus, said method including:

- (i) Providing a first chamber 76 connectable with a source of gaseous fuel (T) at a required inlet pressure;
- (ii) Providing a second chamber (D) connectable with an engine 10 or other apparatus and in gas flow connection with said first chamber 76 through a controllable valving means;
- (iii) Providing a flow control means 92 having an inlet connected with said first chamber 76 to receive gaseous fuel therefrom and an outlet connected with a first orifice means so adapted that the outlet pressure of said flow control means 92 is no greater than 53% of the said inlet pressure;
- (iv) Said method further including the control of said gaseous fuel flow by said flow control means 92, so as to control the said outlet pressure and detecting said outlet pressure and controlling said valving means in response to said outlet pressure so as to control the pressure in said second chamber (D) and therefrom the gaseous fuel flow to said engine 10 or other apparatus from said second chamber (D).

As to Claim 13, Garretson et al discloses maintaining the pressure in said second chamber (D) is maintained at less than 53% of said pressure in said first

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chamber (76) (inherently and necessary present in a gaseous fuel engine)

As to Claim 14, Garretson et al discloses wherein said flow control means 92 is a high speed solenoid valve.

As to Claim 18, Garretson et al discloses a feedback controlled regulator stage including a first chamber 76 having

an inlet connectable to a source of gas (T) at a substantially constant pressure, the first chamber 76 in fluid communication with a second chamber (D) via a controllable valving means, an outlet from said second chamber (D), a second stage diaphragm controlling said controllable valving means and in fluid communication with said second chamber (D) on a first side and a feedback chamber on an opposite second side, wherein a pressure of a gas in said feedback chamber is controlled by a feedback regulator means which varies said pressure in response to a pressure of the gas in said outlet, thereby maintaining said pressure in said outlet at a substantially constant pressure.

As to Claim 19, Garretson et al discloses an apparatus 30 for a gaseous fuel injection system substantially as herein described with reference to the accompanying figures.

As to Claim 20, Garretson et al discloses a feedback controlled regulator stage substantially as herein described with reference to Figure 1.

As to Claim 21, Garretson et al discloses a method of controlling the flow of gaseous fuel in a fuel injection apparatus 30 substantially as herein described.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The reference by Bussche (US 2,781,752) discloses gaseous fuel injection system..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HYDER ALI whose telephone number is (571) 272-4836. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Kirk Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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